INDIANA
# Epidemiology
NEWSLETTER

Indiana State Department of Health

Epidemiology Resource Center
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# Pertussis Outbreak Reported in a Poorly Vaccinated Population

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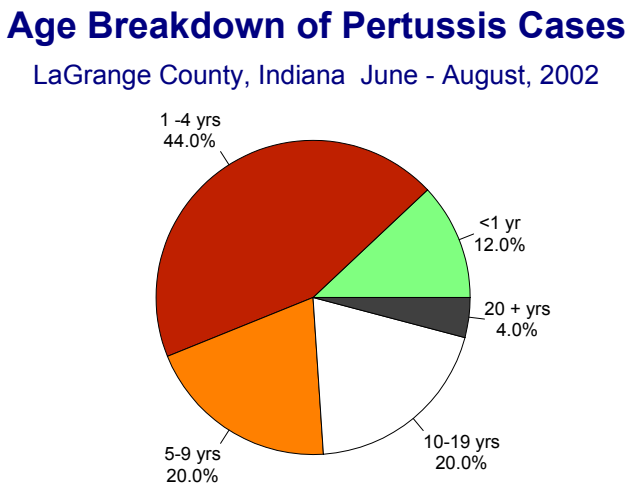
The LaGrange County Health Department and the Indiana State Department of Health (ISDH) are currently investigating an outbreak of pertussis in a poorly vaccinated population. As of September 19, 25 cases have been reported in LaGrange County, with 11 additional cases currently under investigation.

Three cases have been reported with cough onsets in June. Seventeen more cases were identified with cough onsets in July, and five in August. Ten recently reported cases are under investigation with onsets in July or August, and one case has been reported with a September cough onset date. One case has been culture confirmed and two others were positive by direct fluorescent antibody testing.

Figure 1 shows the age breakdown of cases.

**Figure 1.**

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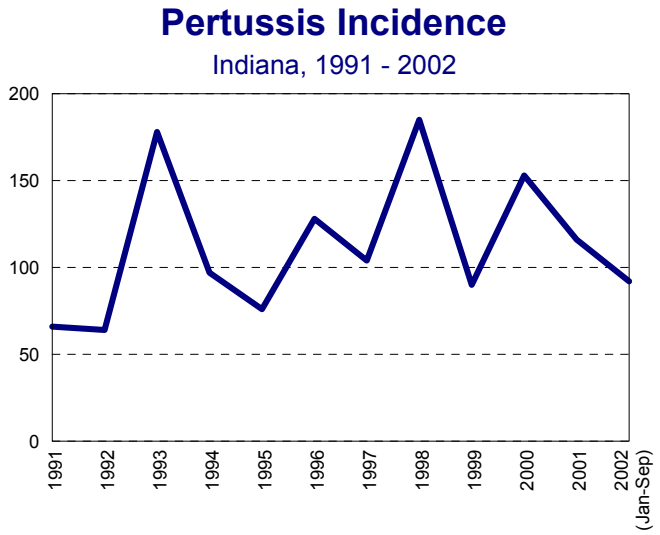
Twenty-two of the cases are under 15 years of age and were eligible for pertussis-containing vaccine at some time in their life. Eighteen of those 22 cases had not received any pertussis vaccine at the time of their cough onset.

Over 90 cases of pertussis have been reported in Indiana during 2002. With additional cases currently under investigation in LaGrange County and other areas of the state, it is most likely that well over 100 cases will be reported in Indiana by the end of the year. Figure 2 shows historical data on pertussis incidence in Indiana.

**Figure 2.**




Pertussis is an acute respiratory illness caused by the bacterium *Bordetella pertussis*. Pertussis is characterized by the insidious onset of coryza, sneezing, low-grade fever and a mild cough. The cough gradually becomes more severe, and after a couple of weeks the paroxysmal stage begins which is distinguished by numerous rapid bursts of cough, which may be accompanied by a high pitched whoop. Vomiting and exhaustion commonly follow the episode, but the patient may appear normal between attacks. The incubation period for pertussis is usually 7-10 days, but may range from 4-21 days. The infectious period is considered to be 21 days after the onset of symptoms. Patients are not contagious after five days of appropriate antibiotic therapy.

## Diagnostic Testing of Suspect Cases

The organism is most easily recovered from nasopharyngeal mucus in the catarrhal or early paroxysmal stages, and is rarely recovered after the fourth week of illness. It is recommended that both culture and DFA be done. False positive and false negative DFA results may occur. A positive culture is diagnostic, whereas false-negative cultures are common in patients receiving antibiotics. Because of difficulties with laboratory testing, clinicians often must make the diagnosis on the basis of clinical findings such as inspiratory whoop, post-tussive emesis and lymphocytosis. All symptomatic contacts to cases should be cultured prior to receiving antibiotic treatment, as well as all patients with an unexplained, sleep-disturbing cough. Special attention should be paid to infants, as well as adolescents and adults with mild illness that could represent pertussis. There is no charge for pertussis testing performed by the ISDH Laboratory. Pertussis test kit 2A may be obtained by writing or calling:

**Container Section - Rm. 13 G**
**Medical Science Building, IUPUI Campus**
**635 North Barnhill Drive**
**Indianapolis, Indiana 46207-7202**
**317/233-8104**

Directions for submitting specimens are enclosed in the pertussis test kit. For best results, pertussis specimens should be received in the ISDH Laboratory within 24 hours of collection (an overnight express is preferred shipping method). For additional help with specimen handling and shipment or test result interpretation, call the Special Reference Bacteriology Laboratory at 317/233-8040.

**Recommendations:**

- Consider the diagnosis of pertussis in acute cough illness, regardless of the age of the patient, especially if the cough is associated with post-tussive vomiting and/or gagging or if the cough persists for two weeks or longer.
- Insure that all children eligible for vaccination are up-to-date.
- Report any suspected case of pertussis to your local or state health department immediately, so that control measures can be implemented.
- Both culture and DFA testing should be performed on all suspected cases and symptomatic contacts of cases prior to the administration of antibiotics. See side bar related to diagnostic testing.
- The Indiana State Special Reference Bacteriology Laboratory encourages pertussis cultures isolated in other laboratories be sent to them. The State Laboratory, in conjunction with the CDC Laboratories, can conduct antibiotic resistance testing and genotyping of pertussis isolates. This information would add to the public health implications and epidemiological understanding of the organism. Please call the Special Reference Bacteriology Laboratory at 317-233-8040 if you have questions about shipping pertussis cultures to the State Laboratory.

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# Final Efforts Underway in Securing Data for the DOJ/CDC Survey: Public Health Performance Assessment – Emergency Preparedness

Leah Ingraham, Ph.D.
ISDH Epidemiology Resource Center

**"I'm coming in on Sunday and getting this thing done."** - So stated a local public health department nurse recently who is in charge of data entry for her county. For the past several months local health department (LHD) staff have been working hard to complete the survey *Public Health Performance Assessment – Emergency Preparedness*. This survey was developed jointly by the Department of Justice (DOJ) and the Centers for Disease Control and Prevention (CDC) and is one part of a three-part effort to determine US preparedness to respond to emergencies including those caused by terrorist activities.

**"Didn't we already do this with the county emergency management director?"** – question from a public health administrator. Several different county level activities were going on at the same time as the data collection phase for this survey. Because terrorism responses initially will be carried out at the local level, the focus of the DOJ/CDC effort has been to complete county-by-county assessments of 1. Potential threats, 2. vulnerabilities, and 3. public health readiness. County emergency management agencies were responsible for the first two assessments. Threat determination was carried out by collecting data on the presence of known or suspected groups or individuals who are inclined to violent expression of their beliefs or grievances. Vulnerability determination was done through cataloging possible targets that might attract terrorists such as facilities where large amounts of toxic chemicals might be stored or large-scale events where large numbers of persons might gather. The final assessment was aimed at broadly analyzing the "Public Health System" which includes not only the public health services within a jurisdiction but also the medical care services available. Local health departments served as the lead agencies for these determinations.

The State Emergency Management Agency (SEMA) provided technical assistance to the counties through a contract with an external organization, Batelle. A companion effort, also supported by SEMA through their contractor, RPI/Titan; was an update of the county emergency plans to include terrorism responses.

The Indiana State Department of Health (ISDH) provided technical assistance to LHDs, first broadcasting a video session via the Indiana Higher Education Teleconferencing System (IHETS) and then arranging eight regional trainings. More than two-thirds of the LHDs attended the latter trainings.

**"Try to call back tomorrow at 7:30 AM, before he leaves for inspections." -** So replied a LHD clerk to ISDH consultant trying to return a call to answer questions about the survey. Given the relatively small public health workforce in Indiana (46/100,000 population compared to 76/100,000 average for the other Midwestern states), there were many challenges in completing the survey. The data collection, which required interaction with many community partners, had to be fitted around the floods in May, the many septic system inspections in June/July, as well as the pre-school immunization clinics in July/August.

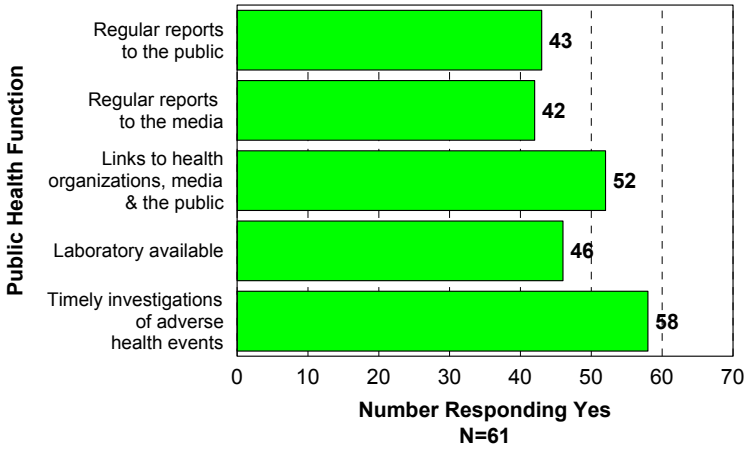
In addition, the instrument for *Public Health Performance Assessment – Emergency Preparedness* was very detailed, comprising more than 400 questions, an unusually long survey indeed. The items were organized around the 10 Essential Services of Public Health:

1. Monitor health status to identify community health problems
2. Diagnose and investigate health problems and health hazards in the community
3. Inform, educate, and empower people about health issues
4. Mobilize community partnerships to identify and solve health problems
5. Develop policies and plans that support individual community health efforts
6. Enforce laws and regulations that protect health and ensure safety
7. Link people to needed personal health services and ensure the provision of health care when otherwise unavailable
8. Assure a competent public and personal health care workforce
9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services
10. Research for new insights and innovative solutions to health problems

**"Could I just fax it to you?"** – e-mail question from LHD staff member. In addition to the complexity of the survey, there was an added feature that created difficulties for some LHDs. The data had to be entered electronically into a national secure database through password-protected access. For departments with few or maybe only one workstation connected to the Internet, such access was often difficult to come by. Some departments had Internet stations that were disconnected during the summer, due to floor cleaning or moving to a new location.

**"Oh yes, we have close connections with infection control at our (county) hospital" -** So commented a public health nurse. As part of the survey 20 questions addressed overall public health capability. Data from 61 LHDs were analyzed and the results are displayed in Figure 1. The majority of these LHDs reported strong activity in investigating health events (58/61), and linking their departments to other health organization as well as to the media (52/61). Many also reported provided health-related reports to both the general public (43/61) and the media (42/61).

## Figure 1. Strengths of Indiana Local Public Health Departments




**"We don't have any of these things."** - Statement from a LHD health environment specialist. There were several deficiencies and areas for improvement that showed up in the results of the 20 overview questions (Table 1). Surveys of the health status and health resources were carried out by about a third of the 61 LHDs but other assessments and evaluations were usually performed by only about a quarter of these departments. This finding is no doubt again a reflection of a reduced Indiana public health workforce who work hard to carry out the day-to-day direct services and have little time left over development and administration of survey and evaluation instruments.

### Table 1. Areas for Improvement in Local Indiana Public Health Activities

| Public Health Activity | Percent LHDs Performing Activity |
|---|---|
| Assessment of local health status | 32.8 |
| Behavioral Risk survey in past three years | 11.5 |
| Assessment of health resource & health needs | 29.5 |
| Survey of age groups accessing preventive services | 14.8 |
| Development of health action plan | 19.7 |
| Resource allocation consistent with action plan | 24.6 |
| Resources deployed to meet priority health needs | 26.2 |
| Self-assessment of the local health department | 29.5 |
| Evaluation of the effects of public health services | 23.0 |
| Use of outcome measures to monitor services | 36.2 |

**"Will we be getting any of the (federal) dollars?" -** When complete, the survey data will provide the most recent and complete set of data on the needs of local jurisdictions and will help guide the allocation of federal funding to strengthen public health capacity in our state. Most of the funding will be directed to support the LHDs through a variety of means. There are plans to place teams of epidemiologists and health administrators in several districts so that local staff can call upon these professionals to help them in disease investigations and planning. Funding is directed to aid LHDs in submitting laboratory specimens such as those arising during the recent anthrax situation. There will also be an expanded array of training opportunities as well as upgrades of computer equipment at individual departments. Coming soon will be a comprehensive manual of "how-to's" for each of the LHDs, the *Public Health Emergencies Reference Manual*.

**"Thank you"** – heartfelt appreciation from ISDH staff. To each and every one of the LHD "Contact Persons" who coordinated the data collection and data entry, ISDH staff send expressions of gratitude. These LHD staff members have exhibited the dedication and commitment of Indiana's public health workforce in protecting and serving all of the state's citizens.

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# Cochlear Implant Patients and Meningitis

**(Excerpted from an FDA Public Health Web Notification of August 15, 2002)**

Charlene Graves, M.D.
ISDH Medical Director

The FDA has recently sent out a notification regarding a possible association between cochlear implants and the occurrence of bacterial meningitis. The cause of meningitis in these patients has not been established as yet.

Within the past 14 years, 52 cases of meningitis have been reported worldwide to manufacturers of cochlear implant devices. These have occurred in children and adults ranging in age from 21 months to 72 years, who have undergone cochlear implantation for severe to profound deafness. Twelve deaths have resulted within these cases.

Although CSF culture results were not available for all cases, most have been caused by pneumococcus, with other organisms involved including Hemophilus influenza (Hib), Strep. viridans, enterococcus and *E. coli*. For 6 cases with pneumococcus meningitis and a vaccination history available, none had been vaccinated. Most of the patients have been children under the age of five years.

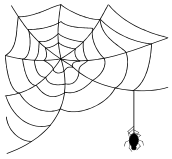
While the cause of meningitis in these cochlear implant recipients is not yet clear, investigations are underway to try to obtain more information. Some deaf patients may have congenital abnormalities of the cochlea, which predispose them to meningitis even prior to implantation. Because the cochlear implant is a foreign body, it may act as a nidus for infection when patients have bacterial illnesses.

**Vaccination Issues:** ***Cochlear implant candidates, as well as those with implants, may benefit from vaccinations against organisms that commonly cause bacterial meningitis, particularly pneumococcus and Hib.*** Immunization status should be determined for all implant candidates prior to surgery, and also for those with an existing implant.

Hib conjugate vaccine is recommended for all children up to age five years. Pneumococcal conjugate vaccine is recommended for all children less than age 2 years, and for children up to age five years at high risk of invasive disease *(which now appears to include cochlear implant patients)*. The 23-valent pneumococcal polysaccharide vaccines are recommended for children over age two years, adolescents, and adults at high risk of invasive pneumococcal disease.

For children age two to five years who are at high risk of invasive pneumococcal infections, the pneumococcal conjugate vaccine, followed at least two months later by the 23-valent polysaccharide vaccine, is recommended in order to provide protection against a broader range of serotypes.

Reporting of cases of meningitis in cochlear implant recipients is encouraged. Cases can be reported directly to the device manufacturer or to MedWatch, the FDA's voluntary reporting program. Report online at http://www.accessdata.fda.gov/scripts/medwatch/; by telephone at 1-800-FDA-1088; by FAX at 1-800-FDA-0178; or by mail to MedWatch, FDA, HF-2, 5600 Fishers Lane, Rockville, MD 20857.



# *Wonderful Wide Web Sites*

## ISDH Data Reports Available

**The ISDH Epidemiology Resource Center has the following data reports and the Indiana Epidemiology Newsletter available on the ISDH Web Page:**

http://www.statehealth.IN.gov (under Data and Statistics)

Indiana Cancer Incidence Report (1990, 95,96)

Indiana Cancer Mortality Report (1990-94, 1992-96)

Indiana Health Behavior Risk Factors (1995-96, 97, 98, 99, 2000)

Indiana Hospital Consumer Guide (1996)

Indiana Marriage Report (1995, 97, 2000)

Indiana Maternal & Child Health Outcomes & Performance Measures (1988-97, 1989-98, 1990-99)

Indiana Mortality Report (1999, 2000)

Indiana Natality Report (1995, 96, 97, 2000)

Indiana Induced Termination of Pregnancy Report (2000)

Indiana Natality/Induced Termination of Pregnancy/Marriage Report (1998, 1999)

Indiana Report of Diseases of Public Health Interest (1996, 97, 98, 99)

## HIV Disease Summary

**Information as of August 31, 2002 (based on 2000 population of 6,080,485)**

***HIV - without AIDS to date:***

| | | | |
|---|---|---|---|
| 445 | New HIV cases from September 2001 thru August 2002 | 12-month incidence | 7.32 cases/100,000 |
| 3,622 | Total HIV-positive, alive and without AIDS on August 31, 2002 | Point prevalence | 59.57 cases/100,000 |

***AIDS cases to date:***

| | | | |
|---|---|---|---|
| 478 | New AIDS cases from September 2001 thru August 2002 | 12-month incidence | 7.86 cases/100,000 |
| 3,150 | Total AIDS cases, alive on August 31, 2002 | Point prevalence | 51.81 cases/100,000 |
| 6,803 | Total AIDS cases, cumulative (alive and dead) | | |

## REPORTED CASES of selected notifiable diseases

| Disease | Cases Reported in August *MMWR* Week 31-35 | | Cumulative Cases Reported January - August *MMWR* Weeks 1-35 | |
|---|---|---|---|---|
| | 2001 | 2002 | 2001 | 2002 |
| Campylobacteriosis | 97 | 51 | 298 | 322 |
| Chlamydia | 1,600 | 1,580 | 7,760 | 8,158 |
| *E. coli* O157:H7 | 17 | 6 | 56 | 34 |
| Hepatitis A | 14 | 3 | 62 | 34 |
| Hepatitis B | 9 | 13 | 36 | 32 |
| Invasive Drug Resistant *S. pneumoniae* (DRSP) | 6 | 5 | 134 | 126 |
| Gonorrhea | 739 | 641 | 3,265 | 3,425 |
| Legionellosis | 3 | 1 | 13 | 12 |
| Lyme Disease | 9 | 5 | 18 | 12 |
| Measles | 0 | 2 | 4 | 2 |
| Meningococcal, invasive | 4 | 2 | 29 | 24 |
| Pertussis | 19 | 37 | 46 | 61 |
| Rocky Mountain Spotted Fever | 0 | 1 | 1 | 2 |
| Salmonellosis | 93 | 60 | 358 | 310 |
| Shigellosis | 25 | 19 | 156 | 63 |
| Syphilis (Primary and Secondary) | 16 | 2 | 90 | 30 |
| Tuberculosis | 12 | 10 | 67 | 76 |
| Animal Rabies | 0 | 14 | 1 (Bat) | 26 (25 Bats 1 Skunk) |

**For information on reporting of communicable diseases in Indiana, call the *ISDH Communicable Disease Division* at (317) 233-7665.**

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**Newsletter**

The *Indiana Epidemiology Newsletter* is published by the Indiana State Department of Health to provide epidemiologic information to Indiana health professionals and to the public health community.